UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/642,343	08/18/2003	Josef Giessler	47279-0015	1920

55694 7590 09/04/2007

DRINKER BIDDLE & REATH (DC)
1500 K STREET, N.W.
SUITE 1100
WASHINGTON, DC 20005-1209

EXAMINER	
ADDISU, SARA	

ART UNIT	PAPER NUMBER
3722	

MAIL DATE	DELIVERY MODE
09/04/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/642,343	GIESSLER ET AL.	
	Examiner	Art Unit	
	Sara Addisu	3722	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 May 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *20 September 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This Office Action is in response to the amendment filed 5/18/07. Currently, claims 1-7 are pending in this application.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

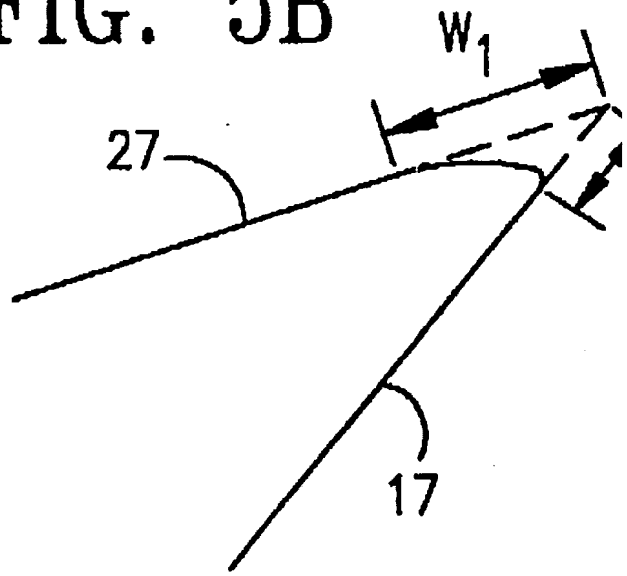
> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. Claims 1-6, are finally rejected under 35 U.S.C. 103(a) as being unpatentable over Britzke et al. (USP 5,609,447), in view of Sato et al. (US Pub No. 2002/0031409) and further in view of Kondo et al. (JP 2000015512).

Britzke et al. teaches an end mill (10) which would obviously have a comprising a shank (11) and a cutting part (13) disposed at the front end of the shank and defining an axis of rotation (16) and an outer periphery of the cutting part (13) having cutting grooves (15) extending helically to the front end face of the cutting part and each cutting groove disposed rearwardly of the end face defining a helix angle with a plane containing the axis while having cutting edges formed at the edge ('447, Figure 1 and Col. 3, lines 26-38). Regarding claim 1, BRITZKE ET AL. teaches the invention could be

used on other tools such as milling cutters therefore, broadly reading the claim, it reads on "a shank end mill" ('447, Col. 5, lines 53-59). BRITZKE ET AL. also teaches in figures 5, the helix angle being larger than a cutting-face angle formed between the end face and a front end section of each cutting groove, the cutting-face angle continuously transforming into the helix angle. BRITZKE ET AL. also teaches in figures 5 the cutting-face angle transforming (via a transition) into the helix angle along a constant radius of curvature (figure 5A) as well as the cutting-face angle transforming into the helix angle along a plurality of radii (figure 5B) whereby a first radius adjoins the cutting edge, and a second radius adjoins the helix angle (the first radius being smaller than the second radius: see figure below). Regarding claims 5 and 6, BRITZKE ET AL. teaches in Figure 5B, the transition between the cutting-face angle and the helix angle extending substantially parallel to the axis for a distance shorter than a diameter of the tool as well as shorter than half the diameter of the tool (all see figure 4 for the diameter of the tool).

FIG. 5B

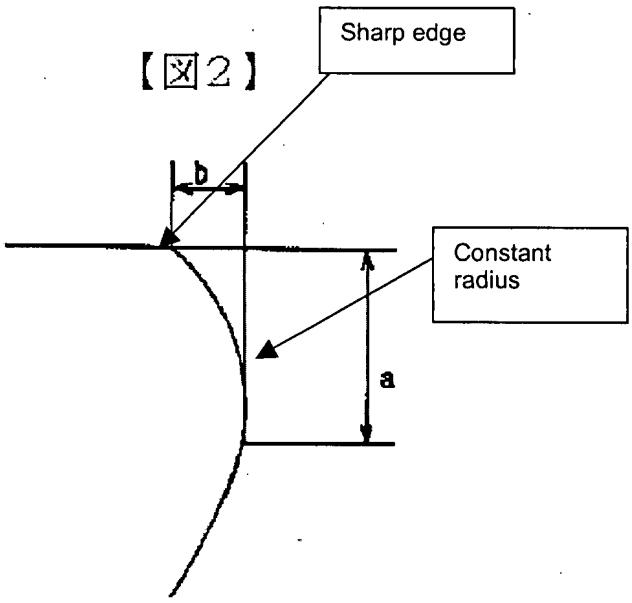


However, BRITZKE ET AL. fails to teach the milling cutter being an end mill having main cutting edges extending along an edge of the cutting grooves as well as being arranged substantially in a common plane. BRITZKE ET AL. also fails to teach the transition from the end face to the front end section of each cutting groove forming a sharp cutting edge.

Sato et al. teaches an end mill having a shank (12) and a cutting part having cutting edges extending along an edge of the cutting grooves and being arranged substantially in a common plane ('409, figure 1 and page 1, paragraph 2).

Kondo et al. teaches a tool having a sharp cutting edge at the transition and a cutting face angle continuously transforming into a helix angle along a constant radius ('512, figure 2 and figure below). Kondo et al. also teaches in figure 2, performing

round-head horning (i.e. reinforcement of the cutting edge) at a location that is shifted further where it is not the at the point of the cutting edge (consequently, the transformation part remains sharp) ('512, translation, Page 2, lines 1-3 and paragraph 7).



Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to include cutting edges that extending along an edge of the cutting grooves (and arranged substantially in a common plane) of BRITZKE ET AL's invention, as taught by Sato et al., for the purpose of using the tool in slot or shoulder milling operations ('490, page 1, paragraph 2, lines 6-7) since BRITZKE ET AL. teaches the invention can be used on other tools such as milling cutters ('447, Col. 5, lines 53-59). It would have also been obvious to one of ordinary skill in the art at the time of the invention was made to modify BRITZKE ET AL's invention such that it has a

sharp cutting edge at the transition from the front end section, as taught by Kondo et al., for the purpose of reducing the chipping/breaking of the cutting edge ('512, abstract).

2. Claim 7 is finally rejected under 35 U.S.C. 103(a) as being unpatentable over Britzke et al. (USP 5,609,447), in view of Sato et al. (US Pub No. 2002/0031409) and further in view of Kondo et al. (JP 2000015512) and Meece et al. (USP 6,585,460).

The modified device of BRITZKE ET AL. teaches a rotary cutting tool (10) comprising a shank (11) and a cutting part (13) and an outer periphery of the cutting part (13) having cutting grooves (15) extending helically to the front end face of the cutting part, as set forth in the above rejection.

However, the modified device of BRITZKE ET AL. fails to teach the end face and the outer periphery being joined by a chamfer.

MEECE ET AL. teaches a drill having an outer periphery (18) being jointed to the end face via chamfer (90) having axial extension shorter than its axial extension of the transition from the cutting face angle to the helix angle ('460, figures 1 and 3).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify BRITZKE ET AL.'s invention such that the

outer periphery and the end face are joined via chamfer, as taught by MEECE ET AL. for the purpose of providing a cutting land ('460, Col. 3, line 61 to Col. 4, line 5).

Response to Arguments

Applicant's arguments filed 5/18/07 have been fully considered but they are not persuasive.

In response to Applicants argument (page 7, second paragraph) that , "To the contrary, one having ordinary skill in the art applying the invention *of Britzke et al.* to a milling tool, would clearly strive to provide the corresponding feature along the main cutting edges of a milling tool. That is, the rounded main cutting edges would be applied to the helically extending main cutting edges of the milling tool, but not to the minor cutting edges at the front end thereof" and (page 7, 3rd paragraph) that "In as far as *Britzke et al.* refers to "cutting edges", one having ordinary skill in the art would understand this to be referring to the main cutting edges, which, for a drill, are the front end cutting edges. However, due to the fact that milling tools have their main cutting edges generally arranged on the circumference of the tool (in general on a cylindrical envelope surface), a skilled man would clearly understand that the modification should be made with the respective main cutting edges of a mill which are not the front end cutting edges but instead the cutting edges extending along a helical edge of the respective helical cutting grooves", "Examiner respectfully points out that *Britzke et al.* is the base reference used for the rejection and so *Britzke et al.'s teaching* will not be taught to modify a milling tool (as argued by Applicant) therefore Applicant's argument is

not applicable. Furthermore, as mentioned in the above rejection *Britzke et al.* teaches "the modified cutting edges of the present invention could be used on other types of rotating tools, '447, col. 5, lines 53-55)", an end mill qualifies as "a rotating tool" (also confirmed by the examples if rotating tools *Britzke et al.* lists: other types of drills, router bits and milling cutters.. '447, col. 5, lines 56-58). As a result, *Britzke et al.* was modified such that it includes cutting edges that extend along an edge of the cutting grooves (and arranged substantially in a common plane), as taught by Sato et al., for the purpose of using the tool in slot or shoulder milling operations ('490, page 1, paragraph 2, lines 6-7).

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sara Addisu at (571) 272-6082. The examiner can normally be reached on 8:30 am - 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Monica Carter can be reached on (571) 272-4475. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Sara Addisu
(571) 272-6082

SA
8/16/07

Monica S. Carter
MONICA CARTER
SUPERVISORY PATENT EXAMINER